



Science Teacher Safety Training: Mandatory for Employer!

SAFE SCIENCE: BE PROTECTED

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I. Why Is Safety Training Required for Science Teachers by Their Employers?

Science education is a changing landscape! Changes over the past ten years alone have been both evolutionary and revolutionary – National Science Standards, new required state assessments, “No Child Left Behind” legislation, science teacher certification issues, science teacher shortages and retirements, molecular approach to Biology, Physics First, etc. etc. etc. These changes and issues range from curriculum/instruction, professional development, personnel and facilities.

With the advent of increased hands-on science, new facilities and a major turnover in the teaching workforce, laboratory safety is once again in for forefront. Elementary teachers and Science teachers are being asked to increase laboratory work, activities and field opportunities from grade kindergarten to twelve. With these changes comes an added professional and legal responsibility. The challenges of this approach to “doing” science are best met by through safety training and enforcement.

The Occupational Safety and Health Administration or OSHA requires employers (A.K.A. Board

of Education) to provide laboratory safety information and training for science teachers, science supervisors and science paraprofessionals. The OSHA standard is actually old news –effective 01 May 1990. Employers have been responsible for having a Chemical Hygiene Plan in place and operational by 31 January 1991.

II. What Information Is Required?

In most states, public school teachers are under General Industry OSHA safety standard 1910.1450 Occupational Exposure to Hazardous Chemicals in laboratories or the laboratory standard. In the few remaining states (Delaware, Georgia, Massachusetts, North Dakota and Texas), most health and safety divisions have similar expectations but do not require a Chemical Hygiene Plan. Federal jurisdiction does cover all private schools on this Standard.

OSHA states that “The employer shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area.” The Standard provides both general contents required for adoption and “Appendices” which are noted as “non-mandatory.”

Required general information for employees must include:

A. Contents of the laboratory standard:

1. Scope and Application;
2. Definitions;
3. Permissible Exposure Limits - PEL(Exceeding of Exposure Limits);
4. Employee Exposure Determination (Monitoring and Notification);
5. Chemical Hygiene Plan (General components);
6. Employee Information and Training (Providing Information);
7. Medical Consultation and Medical Examinations (Getting Medical Attention);
8. Hazard Identification (Providing Labels and MSDS);
9. Use of Respirators (Maintaining Exposure Below PELs);
10. Record keeping (Records Relative to Exposure and Consultations/Examinations)
11. Effective Dates.

B. “Appendices” of the laboratory standard include:

1. The National Research Council Recommendations concerning Chemical Hygiene In Laboratories – including
 - a. **General Principles** -
 - i. Minimizing All Chemical Exposures;
 - ii. Avoiding Underestimated Risk;
 - iii. Providing Adequate Ventilation;
 - iv. Instituting a Chemical Hygiene Program;
 - v. Observing PELs and TLVs.
 - b. **Responsibilities**
 - i. Chief Executive Officer (Superintendent);
 - ii. Supervisor;
 - iii. Chemical Hygiene Officer.
 - c. **The Laboratory Facility**
 - i. Design;
 - ii. Maintenance;
 - iii. Usage;
 - iv. Ventilation.
 - d. **Components of Chemical Hygiene Plan**
 - i. Basic Rules and Procedures;
 - ii. Chemical Procurement, Distribution and Storage;
 - iii. Environmental Monitoring;
 - iv. Housekeeping, Maintenance and Inspections.
 - v. Medical program
 - vi. Personal Protective Apparel and Equipment;
 - vii. Records;

- viii. Signs and Labels;
- ix. Spills and Accidents;
- x. Training and Information;
- xi. Waste disposal.

e. General Procedures for Working with Chemicals

- i. General Rules for All Laboratory Work with Chemicals;
- ii. Allergens and Embryotoxins;
- iii. Chemicals of Moderate Chronic or High Acute Toxicity;
- iv. Chemicals of High Chronic Toxicity;
- v. Animal Work with Chemicals of High Chronic Toxicity.

f. Safety Recommendations.

g. Material Safety Data Sheets.

h. General Principles for Work with Laboratory Chemicals;

- 1. Chemical Hygiene Responsibilities;
- 2. The laboratory Facility;
- 3. Components of the Chemical Hygiene Plan;
- 4. Basic Rules and Procedures for Working with Chemicals;
- 5. Safety Recommendations;
- 6. References.

- A. Location and Availability of the Chemical Hygiene Plan;
- B. Permissible Exposure Limits for Applicable
- C. Hazardous Chemicals;
- D. Signs and Symptoms Associated with Exposures;
- E. Location and availability of reference materials on hazards, safe handling, storage and disposal of hazardous chemicals used in the lab, including but not limited to Material Safety Data Sheets.

III. What Training is Required?

In addition to providing information and resources, employee training is also required.

Training must include the following items:

- A. Physical and health hazards of hazardous chemicals in the work area;
- B. How employees can protect themselves;
- C. Methods and observations used to detect the presence or release of hazardous chemicals;
- D. Details of the employer's written Chemical Hygiene Plan.

IV. When Must Employee Information & Training Take Place?

Information is required upon the time of the employee's initial assignment where hazardous chemicals are present and prior to assignments involving new exposure situations. Refresher information and training is determined by the employer.

However, it must be remembered that OSHA only provides the absolute minimum for information and training. As licensed professionals, teachers and supervisors are expected to have information and training on a regular basis. Suggestions include a standing monthly department meeting agenda item of safety, safety audits, safety committees, safety instruction notation in daily lesson plans, and more. Should an accident occur, the teacher/supervisor will be required to show a good faith effort relative to safety training and information for other employees and students. With a state teaching license, teachers and supervisors are held to a high professional standard in courts of law.

In addition, although the "Appendices" are considered "non-mandatory," their adoption and use is prudent practice. In both safety and litigation, prudent practice and accepted professional practice. Bottomline is – write and use all aspects of the Standard for a safer work environment!

V. Final Word

If a teacher's employer is not doing or requiring safety training, it is the responsibility of the teacher/supervisor as an employee to ask for it. It is required, the law and an entitlement for employee protection and a safety working environment for all!

RESOURCES:

Occupational Safety and Health Administration:

<http://www.osha.gov>

Flinn Scientific Inc.: <http://flinnsci.com>

LIVE LONG AND PROSPER SAFELY!

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